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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,985	11/30/2003	Wayne Theel	783403605019	8778

7590 06/20/2005

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EXAMINER

NGUYEN, VAN THU T

ART UNIT	PAPER NUMBER
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2824

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

<b>Office Action Summary</b>	Application No. 10/724,985	Applicant(s) THEEL, WAYNE	
	Examiner VanThu Nguyen	Art Unit 2824	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on with Paul Franz on 6/13/05.  
 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
     4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.  
 7) ☒ Claim(s) 4 and 10-13 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 30 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-13, drawn to read/write circuit, classified in class 365, subclass 189.01.
  - II. Claim 14, drawn to including reference or bias voltage/current generator, classified in class 365, subclass 189.09.
  - III. Claims 15-20, drawn to particular decoder/driver circuit, classified in class 365, subclass 230.06.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II/III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as word line equalizer connected to the word line. See MPEP § 806.05(d).
3. Inventions II and I/III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as a current source. See MPEP § 806.05(d).
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and fields of search, restriction for examination purposes as indicated is proper.
5. During a telephone conversation with Paul Franz on June 13, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-13. Affirmation of

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this election must be made by applicant in replying to this Office action. Claims 14-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 6, 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Sakimura et al. (U.S. Patent No. 6,795,340).

Regarding claim 1, Sakimura discloses, in FIGS. 9, 14 and 22-23, a magnetic random access memory comprising, in combination:

a plurality of magnetic memory elements that perform a memory operation (see FIG. 9);

a word line to magnetically (one of the word lines 10a to 10d, see FIG. 14) activate at least one magnetic memory element;

a sense line (one of the bit lines 11a to 11b, see Fig. 14) to detect the state of the at least one magnetic memory element;

a word line driver (e.g. Q1a & Q1b, see FIG. 14) connected to the word line to drive a current on the word line during the memory operation; and

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a word line equalizer connect to the word line to equalize the word line during non-memory operations (e.g. Q3a, see FIG. 14)

(See column 11, lines 1-54, and column 14, lines 18-57)

Regarding claims 2-3, 6, 8-9, Sakimura also discloses (also see column 11, lines 1-54, and column 14, lines 18-57) the memory operation being a read operation (as in claim 2); the memory operation being a write operation (as in claim 3); a plurality of word lines (word lines 10a to 10d, see FIG. 14) (as in claim 6); a word line controller (see FIG. 16A) that enables the word line equalizer (via signals XTM0-XTM3) in response to a word line enable signal (word line is enable for selection to read/write via write enable WE or read enable RE signals) (as in claim 8); a plurality of word lines (word lines 10a to 10d, see FIG. 14), and an inherent address bus (for transmitting address bits b0 and b1, see FIG. 16A) to select the magnetic memory element with one of the plurality of word lines and the address bus (as in claim 9).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakimura in view of Hosokawa et al. (U.S. Patent No. 6,246,630).

Sakimura discloses, as applied in prior rejection of claim 1, all claimed subject matter except further limitations as set forth in claims 5 and 7.

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Regarding claims 5 and 7, Hosokawa discloses, in FIG. 9, two memory units 310 and 311 sharing a row decoders 312 operate as a signal bank, first half word line and second half word line are obviously inherent within memory units 310 and 311 (see column 8, lines 40-49).

Since Sakimura and Hosokawa are both from the same field of endeavor, the purpose disclosed by Hosokawa would have been recognized in the pertinent art of Sakimura.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to share a row decoder between memory units in order to reduce amount of area occupied by circuitry other than memory cells.

***Allowable Subject Matter***

10. Claims 4, 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art made of record and considered pertinent to the applicant's disclosure does not teach or suggest the claimed limitations. Sakimura and Hosokawa, taken individually or in combination, do not teach the claimed invention having the following limitations, in combination with the remaining claimed limitations;

- i) word line driver further comprising, in combination: a first transistor with a gate connected to an equalize signal and a first terminal connected to a power supply and a second terminal connected to a first end of the word line; a second transistor connected to a second end of the word line, with the first transistor cooperating with the second transistor to drive current on the word line when the equalize signal is inactive; and an

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equalizer transistor connected to provide a equalization signal to the word line when the equalize signal is active (as in claim 4); or

ii) the word line driver further comprising, in combination: a logic controller having a read/write input, an enable input, and a read enable output and a write enable output; and a feedback amplifier having a sense reference read signal input, a sense reference write signal input, a word line signal input, and a word line driver signal output, with the feedback amplifier providing current to the word line in response to the read enable output and the write enable output (as in claim 10).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Numata et al. (U.S. Patent No. 6,341,084). Numata discloses, in FIG. 3, an MRAM having all word lines equalized to an equal potential  $V_s$  during standby mode via inverter 157, and word line driver circuit comprising 125 and 129 for driving selected word line in a read operation.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VanThu Nguyen whose telephone number is (571) 272-1881. The examiner can normally be reached on Monday-Friday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

June 15, 2005



VanThu Nguyen  
Primary Examiner  
Art Unit 2824